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GUSELLA, JAMES F.

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<150> 60/260,080
<151> 2001-01-06

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Glu	Asp	Gly	Ser	Gly	Arg	Ile	Val	Gly	Val	Gln	Asp	Leu	Leu	Asp	Gln
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Glu	Ser	Val	Cys	Val	Ala	Thr	Ala	Ser	Gly	Asp	Val	Ile	Leu	Cys	Ser
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Leu	Ser	Thr	Gln	Gln	Leu	Glu	Cys	Val	Gly	Ser	Val	Ala	Ser	Gly	Ile
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Gly	Gln	Gln	Thr	Leu	Ile	Met	Met	Thr	Lys	Asp	Phe	Glu	Pro	Ile	Leu
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Glu	Gln	Gln	Ile	His	Gln	Asp	Asp	Phe	Gly	Glu	Ser	Lys	Phe	Ile	Thr
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Val	Gly	Trp	Gly	Arg	Lys	Glu	Thr	Gln	Phe	His	Gly	Ser	Glu	Gly	Arg
						165		170				175			

Gln	Ala	Ala	Phe	Gln	Met	Gln	Met	His	Glu	Ser	Ala	Leu	Pro	Trp	Asp
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Asp	His	Arg	Pro	Gln	Val	Thr	Trp	Arg	Gly	Gln	Phe	Phe	Ala		
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Val	Ser	Val	Val	Cys	Pro	Glu	Thr	Gly	Ala	Arg	Lys	Val	Arg	Val	Trp
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Asn	Arg	Glu	Phe	Ala	Leu	Gln	Ser	Thr	Ser	Glu	Pro	Val	Ala	Gly	Leu
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Gly	Pro	Ala	Leu	Ala	Trp	Lys	Pro	Ser	Gly	Ser	Leu	Ile	Ala	Ser	Thr
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Gln	Asp	Lys	Pro	Asn	Gln	Asp	Ile	Val	Phe	Phe	Glu	Lys	Asn	Gly	
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Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Val Arg
290 295 300

Leu Glu Asp Leu Gln Arg Glu Lys Ser Ser Ile Pro Lys Thr Cys Val
305 310 315 320

Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
325 330 335

Ser Phe Ser Thr Cys Gly Lys Ser Lys Ile Val Ser Leu Met Trp Asp
340 345 350

Pro Val Thr Pro Tyr Arg Leu His Val Leu Cys Gln Gly Trp His Tyr
355 360 365

Leu Ala Tyr Asp Trp His Trp Thr Thr Asp Arg Ser Val Gly Asp Asn
370 375 380

Ser Ser Asp Leu Ser Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
385 390 395 400

Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
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Gln Leu Leu Phe Pro His Pro Val Asn Gln Val Thr Phe Leu Ala His
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Pro Gln Lys Ser Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile
435 440 445

Ser Val Tyr Lys Cys Gly Asp Cys Pro Ser Ala Asp Pro Thr Val Lys
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Leu Gly Ala Val Gly Gly Ser Gly Phe Lys Val Cys Leu Arg Thr Pro
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His Leu Glu Lys Arg Tyr Lys Ile Gln Phe Glu Asn Asn Glu Asp Gln
485 490 495

Asp Val Asn Pro Leu Lys Leu Gly Leu Leu Thr Trp Ile Glu Glu Asp
500 505 510

Val Phe Leu Ala Val Ser His Ser Glu Phe Ser Pro Arg Ser Val Ile
515 520 525

His His Leu Thr Ala Ala Ser Ser Glu Met Asp Glu Glu His Gly Gln
530 535 540

Leu Asn Val Ser Ser Ser Ala Ala Val Asp Gly Val Ile Ile Ser Leu
545 550 555 560

Cys Cys Asn Ser Lys Thr Lys Ser Val Val Leu Gln Leu Ala Asp Gly
565 570 575

Gln Ile Phe Lys Tyr Leu Trp Glu Ser Pro Ser Leu Ala Ile Lys Pro
580 585 590

Trp Lys Asn Ser Gly Gly Phe Pro Val Arg Phe Pro Tyr Pro Cys Thr
595 600 605

Gln Thr Glu Leu Ala Met Ile Gly Glu Glu Cys Val Leu Gly Leu
610 615 620

Thr Asp Arg Cys Arg Phe Phe Ile Asn Asp Ile Glu Val Ala Ser Asn
625 630 635 640

Ile Thr Ser Phe Ala Val Tyr Asp Glu Phe Leu Leu Leu Thr Thr His
645 650 655

Ser His Thr Cys Gln Cys Phe Cys Leu Arg Asp Ala Ser Phe Lys Thr
660 665 670

Leu Gln Ala Gly Leu Ser Ser Asn His Val Ser His Gly Glu Val Leu
675 680 685

Arg Lys Val Glu Arg Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
690 695 700

Thr Lys Leu Val Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
705 710 715 720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
725 730 735

Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
740 745 750

Asn Pro Ile Tyr Asp His Asn Pro Lys Val Phe Leu Gly Asn Val Glu
755 760 765

Thr Phe Ile Lys Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
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Thr Glu Leu Lys Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Ala Pro
785 790 795 800

Val Thr Ser Ser Val Tyr Leu Ser Arg Asp Pro Asp Gly Asn Lys Ile
805 810 815

Asp Leu Val Cys Asp Ala Met Arg Ala Val Met Glu Ser Ile Asn Pro
820 825 830

His Lys Tyr Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
835 840 845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val His Glu Leu Gln Gly Asn
850 855 860

Ala Pro Ser Asp Pro Asp Ala Val Ser Ala Glu Glu Ala Leu Lys Tyr
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Leu Leu His Leu Val Asp Val Asn Glu Leu Tyr Asp His Ser Leu Gly
885 890 895

Thr Tyr Asp Phe Asp Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
900 905 910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
915 920 925

Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu
930 935 940

Lys Ala Ile Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Pro Glu

945 950 955 960
Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Asn Glu Ala Leu Lys
965 970 975
Leu Tyr Ser Pro Ser Ser Gln Gln Tyr Gln Asp Ile Ser Ile Ala Tyr
980 985 990
Gly Glu His Leu Met Gln Glu His Met Tyr Glu Pro Ala Gly Leu Met
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Phe Ala Arg Cys Gly Ala His Glu Lys Ala Leu Ser Ala Phe Leu Thr
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Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser
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Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile
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Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
1105 1110 1115 1120
Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys
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Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly
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Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His
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Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
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Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu
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Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu
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Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
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Ser Leu Leu Asp
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35 40 45

Arg Glu Val Lys Thr Glu Ile Ser Leu Val Ala Glu Gly Phe Leu Pro
50 55 60

Glu Asp Gly Ser Gly Cys Ile Val Gly Ile Gln Asp Leu Leu Asp Gln
65 70 75 80

Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Val Cys Asn
85 90 95

Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile
100 105 110

Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Leu Leu Ala Thr
115 120 125

Ala Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Val Ile Ala
130 135 140

Glu Glu Gln Ile His Gln Asp Asp Phe Gly Glu Gly Lys Phe Val Thr
145 150 155 160

Val Gly Trp Gly Ser Lys Gln Thr Gln Phe His Gly Ser Glu Gly Arg
165 170 175

Pro Thr Ala Phe Pro Val Gln Leu Pro Glu Asn Ala Leu Pro Trp Asp
180 185 190

Asp Arg Arg Pro His Ile Thr Trp Arg Gly Asp Gly Gln Tyr Phe Ala
195 200 205

Val Ser Val Val Cys Arg Gln Thr Glu Ala Arg Lys Ile Arg Val Trp
210 215 220

Asn Arg Glu Phe Ala Leu Gln Ser Thr Ser Glu Ser Val Pro Gly Leu
225 230 235 240

Gly Pro Ala Leu Ala Trp Lys Pro Ser Gly Ser Leu Ile Ala Ser Thr
245 250 255

Gln Asp Lys Pro Asn Gln Gln Asp Val Val Phe Phe Glu Lys Asn Gly
260 265 270

Leu Leu His Gly His Phe Thr Leu Pro Phe Leu Lys Asp Glu Val Lys
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Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Ile Trp
290 295 300

Leu Glu Asp Leu Pro Lys Glu Asp Ser Ser Thr Leu Lys Ser Tyr Val
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Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
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Pro Phe Ser Thr Thr Gly Lys Asn Gln Ile Val Ser Leu Leu Trp Asp
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Pro Val Thr Pro Cys Arg Leu His Val Leu Cys Thr Gly Trp Arg Tyr
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Leu Cys Cys Asp Trp His Trp Thr Thr Asp Arg Ser Ser Gly Asn Ser
370 375 380

Ala Asn Asp Leu Ala Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
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Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
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Arg Leu Leu Ile Pro His Pro Val Asn Gln Val Ile Phe Ser Ala His
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Leu Gly Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile Ser Val
435 440 445

Tyr Lys Cys Gly Asp Lys Pro Asn Met Asp Ser Thr Val Lys Leu Gly
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Ala Val Gly Gly Asn Gly Phe Lys Val Pro Leu Thr Thr Pro His Leu
465 470 475 480

Glu Lys Arg Tyr Ser Ile Gln Phe Gly Asn Asn Glu Glu Glu Glu
485 490 495

Glu Asp Phe Ala Leu Gln Leu Ser Phe Leu Thr Trp Val Glu Asp Asp
500 505 510

Thr Phe Leu Ala Ile Ser Tyr Ser His Ser Ser Ser Gln Ser Ile Ile
515 520 525

His His Leu Thr Val Thr His Ser Glu Val Asp Glu Glu Gln Gly Gln
530 535 540

Leu Asp Val Ser Ser Ser Val Thr Val Asp Gly Val Val Ile Gly Leu
545 550 555 560

Cys Cys Cys Ser Lys Thr Lys Ser Leu Ala Val Gln Leu Ala Asp Gly
565 570 575

Gln Val Leu Lys Ile Leu Trp Glu Ser Pro Ser Leu Ala Val Glu Pro
580 585 590

Trp Lys Asn Ser Glu Gly Ile Pro Val Arg Phe Val His Pro Cys Thr
595 600 605

Gln Met Glu Val Ala Thr Ile Gly Gly Glu Glu Cys Val Leu Gly Leu
610 615 620

Thr Asp Arg Cys Arg Phe Phe Ile Leu Val Thr Glu Val Ala Ser Asn
625 630 635 640

Ile Thr Ser Phe Ala Val Cys Asp Asp Phe Leu Leu Val Thr Thr His
645 650 655

Ser His Thr Cys Gln Gly Phe Ser Leu Ser Gly Ala Ser Leu Lys Met
660 665 670

Leu Gln Ala Ala Leu Ser Gly Ser His Glu Ala Ser Gly Glu Ile Leu
675 680 685

Arg Lys Val Val Trp Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
690 695 700

Thr Lys Leu Ile Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
705 710 715 720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
725 730 735

Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
740 745 750

Asn Leu Ile His Asp His Asn Pro Lys Val Phe Leu Glu Asn Val Glu
755 760 765

Thr Phe Val Phe Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
770 775 780

Thr Glu Leu Arg Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Pro Pro
785 790 795 800

Ile Thr Lys Ser Val Gln Val Ser Thr His Pro Asp Gly Lys Lys Leu
805 810 815

Asp Leu Ile Cys Asp Ala Met Arg Ala Ala Met Glu Ala Ile Asn Pro
820 825 830

Arg Lys Phe Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
835 840 845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val Gln Glu Leu Gln Gly Asn
850 855 860

Leu Pro Phe Asp Pro Glu Ser Val Ser Val Glu Glu Ala Leu Lys Tyr
865 870 875 880

Leu Leu Leu Leu Val Asp Val Asn Glu Leu Phe Asn His Ser Leu Gly
885 890 895

Thr Tyr Asp Phe Asn Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
900 905 910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
915 920 925

Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu

930 935 940
Lys Ala Leu Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Thr Glu
945 950 955 960
Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Lys Glu Ala Leu Lys
965 970 975
Leu Tyr Arg Pro Asp Ser Pro Gln Tyr Gln Ala Val Ser Met Ala Tyr
980 985 990
Gly Glu His Leu Met Gln Glu His Leu Tyr Glu Pro Ala Gly Leu Val
995 1000 1005
Phe Ala Arg Cys Gly Ala Gln Glu Lys Ala Leu Glu Ala Phe Leu Ala
1010 1015 1020
Cys Gly Ser Trp Gln Gln Ala Leu Cys Val Ala Ala Gln Leu Gln Met
1025 1030 1035 1040
Ser Lys Asp Lys Val Ala Gly Leu Ala Arg Thr Leu Ala Gly Lys Leu
1045 1050 1055
Val Glu Gln Arg Lys His Ser Glu Ala Ala Thr Val Leu Glu Gln Tyr
1060 1065 1070
Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Glu Gly Ser Ala
1075 1080 1085
Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asp Arg Val Asp Ile
1090 1095 1100
Ile Glu Thr Ser Ile Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
1105 1110 1115 1120
Met Asp Phe Leu Asp Ser Glu Thr Ala Thr Phe Ile Arg His Lys Asn
1125 1130 1135
Arg Leu Gln Val Val Arg Ala Leu Arg Arg Gln Ala Pro Gln Val His
1140 1145 1150
Val Asp His Glu Val Ala His Gly Pro Glu Ser Asp Leu Phe Ser Glu
1155 1160 1165
Thr Ser Ser Ile Met Ser Gly Ser Glu Met Ser Gly Arg Tyr Ser His
1170 1175 1180
Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
1185 1190 1195 1200
Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Gly Leu
1205 1210 1215
Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Ser Val Glu Lys Leu
1220 1225 1230
Lys Asp Glu Val Arg Ala Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
1235 1240 1245
Glu Glu Gln Ala Lys Glu Leu Gln Arg Ala Phe Glu Ser Thr Leu Gln
1250 1255 1260
Leu Met Glu Arg Ala Val Pro Glu Ile Trp Thr Pro Ala Gly Gln Gln
1265 1270 1275 1280

Ser Ser Thr Thr Pro Val Leu Gly Pro Ser Ser Thr Ala Asn Ser Ile
1285 1290 1295
Thr Ala Ser Tyr Gln Gln Gln Lys Thr Cys Val Pro Ala Leu Asp Ala
1300 1305 1310
Gly Val Tyr Met Pro Pro Lys Met Asp Pro Arg Ser Gln Trp Lys Leu
1315 1320 1325
Ser Leu Leu Glu
1330

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<211> 1332
<212> PRT
<213> Homo sapiens

<400> 5
Met Arg Asn Leu Lys Leu Phe Arg Thr Leu Glu Phe Arg Asp Ile Gln
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Gly Pro Gly Asn Pro Gln Cys Phe Ser Leu Arg Thr Glu Gln Gly Thr
20 25 30
Val Leu Ile Gly Ser Glu His Gly Leu Ile Glu Val Asp Pro Val Ser
35 40 45
Arg Glu Val Lys Asn Glu Val Ser Leu Val Ala Glu Gly Phe Leu Pro
50 55 60
Glu Asp Gly Ser Gly Arg Ile Val Gly Val Gln Asp Leu Leu Asp Gln
65 70 75 80
Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Leu Cys Ser
85 90 95
Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile
100 105 110
Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Val Leu Leu Ala Thr
115 120 125
Gly Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Pro Ile Leu
130 135 140
Glu Gln Gln Ile His Gln Asp Asp Phe Gly Glu Ser Lys Phe Ile Thr
145 150 155 160
Val Gly Trp Gly Arg Lys Glu Thr Gln Phe His Gly Ser Glu Gly Arg
165 170 175
Gln Ala Ala Phe Gln Met Gln Met His Glu Ser Ala Leu Pro Trp Asp
180 185 190
Asp His Arg Pro Gln Val Thr Trp Arg Gly Asp Gly Gln Phe Phe Ala
195 200 205
Val Ser Val Val Cys Pro Glu Thr Gly Ala Arg Lys Val Arg Val Trp
210 215 220
Asn Arg Glu Phe Ala Leu Gln Ser Thr Ser Glu Pro Val Ala Gly Leu
225 230 235 240

Gly Pro Ala Leu Ala Trp Lys Pro Ser Gly Ser Leu Ile Ala Ser Thr
245 250 255

Gln Asp Lys Pro Asn Gln Gln Asp Ile Val Phe Phe Glu Lys Asn Gly
260 265 270

Leu Leu His Gly His Phe Thr Leu Pro Phe Leu Lys Asp Glu Val Lys
275 280 285

Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Val Trp
290 295 300

Leu Glu Asp Leu Gln Arg Glu Glu Ser Ser Ile Pro Lys Thr Cys Val
305 310 315 320

Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
325 330 335

Ser Phe Ser Thr Cys Gly Lys Ser Lys Ile Val Ser Leu Met Trp Asp
340 345 350

Pro Val Thr Pro Tyr Arg Leu His Val Leu Cys Gln Gly Trp His Tyr
355 360 365

Leu Ala Tyr Asp Trp His Trp Thr Thr Asp Arg Ser Val Gly Asp Asn
370 375 380

Ser Ser Asp Leu Ser Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
385 390 395 400

Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
405 410 415

Gln Leu Leu Phe Pro His Pro Val Asn Gln Val Thr Phe Leu Ala His
420 425 430

Pro Gln Lys Ser Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile
435 440 445

Ser Val Tyr Lys Cys Gly Asp Cys Pro Ser Ala Asp Pro Thr Val Lys
450 455 460

Leu Gly Ala Val Gly Gly Ser Gly Phe Lys Val Cys Leu Arg Thr Pro
465 470 475 480

His Leu Glu Lys Arg Tyr Lys Ile Gln Phe Glu Asn Asn Glu Asp Gln
485 490 495

Asp Val Asn Pro Leu Lys Leu Gly Leu Leu Thr Trp Ile Glu Glu Asp
500 505 510

Val Phe Leu Ala Val Ser His Ser Glu Phe Ser Pro Arg Ser Val Ile
515 520 525

His His Leu Thr Ala Ala Ser Ser Glu Met Asp Glu Glu His Gly Gln
530 535 540

Leu Asn Val Ser Ser Ser Ala Ala Val Asp Gly Val Ile Ile Ser Leu
545 550 555 560

Cys Cys Asn Ser Lys Thr Lys Ser Val Val Leu Gln Leu Ala Asp Gly
565 570 575

Gln Ile Phe Lys Tyr Leu Trp Glu Ser Pro Ser Leu Ala Ile Lys Pro

580

585

590

Trp Lys Asn Ser Gly Gly Phe Pro Val Arg Phe Pro Tyr Pro Cys Thr
 595 600 605

Gln Thr Glu Leu Ala Met Ile Gly Glu Glu Cys Val Leu Gly Leu
 610 615 620

Thr Asp Arg Cys Arg Phe Phe Ile Asn Asp Ile Glu Val Ala Ser Asn
 625 630 635 640

Ile Thr Ser Phe Ala Val Tyr Asp Glu Phe Leu Leu Leu Thr Thr His
 645 650 655

Ser His Thr Cys Gln Cys Phe Cys Leu Arg Asp Ala Ser Phe Lys Thr
 660 665 670

Leu Gln Ala Gly Leu Ser Ser Asn His Val Ser His Gly Glu Val Leu
 675 680 685

Arg Lys Val Glu Arg Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
 690 695 700

Thr Lys Leu Val Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
 705 710 715 720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
 725 730 735

Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
 740 745 750

Asn Leu Ile Tyr Asp His Asn Pro Lys Val Phe Leu Gly Asn Val Glu
 755 760 765

Thr Phe Ile Lys Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
 770 775 780

Thr Glu Leu Lys Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Ala Pro
 785 790 795 800

Val Thr Ser Ser Val Tyr Leu Ser Arg Asp Pro Asp Gly Asn Lys Ile
 805 810 815

Asp Leu Val Cys Asp Ala Met Arg Ala Val Met Glu Ser Ile Asn Pro
 820 825 830

His Lys Tyr Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
 835 840 845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val His Glu Leu Gln Gly Asn
 850 855 860

Ala Pro Ser Asp Pro Asp Ala Val Ser Ala Glu Glu Ala Leu Lys Tyr
 865 870 875 880

Leu Leu His Leu Val Asp Val Asn Glu Leu Tyr Asp His Ser Leu Gly
 885 890 895

Thr Tyr Asp Phe Asp Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
 900 905 910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
 915 920 925

Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu
930 935 940

Lys Ala Ile Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Pro Glu
945 950 955 960

Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Asn Glu Ala Leu Lys
965 970 975

Leu Tyr Ser Pro Ser Ser Gln Gln Tyr Gln Asp Ile Ser Ile Ala Tyr
980 985 990

Gly Glu His Leu Met Gln Glu His Met Tyr Glu Pro Ala Gly Leu Met
995 1000 1005

Phe Ala Arg Cys Gly Ala His Glu Lys Ala Leu Ser Ala Phe Leu Thr
1010 1015 1020

Cys Gly Asn Trp Lys Gln Ala Leu Cys Val Ala Ala Gln Leu Asn Phe
1025 1030 1035 1040

Thr Lys Asp Gln Leu Val Gly Leu Gly Arg Thr Leu Ala Gly Lys Leu
1045 1050 1055

Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser
1060 1065 1070

Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ala Ala
1075 1080 1085

Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile
1090 1095 1100

Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
1105 1110 1115 1120

Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys
1125 1130 1135

Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly
1140 1145 1150

Leu Asp Asp Glu Val Pro His Gly Gln Glu Ser Asp Leu Phe Ser Glu
1155 1160 1165

Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His
1170 1175 1180

Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
1185 1190 1195 1200

Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu
1205 1210 1215

Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu
1220 1225 1230

Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
1235 1240 1245

Asp Glu Gln Gly Arg Glu Leu Gln Lys Ala Phe Glu Asp Thr Leu Gln
1250 1255 1260

Leu Met Glu Arg Ser Leu Pro Glu Ile Trp Thr Leu Thr Tyr Tyr Gln Gln
1265 1270 1275 1280

Asn Ser Ala Thr Pro Val Leu Gly Pro Asn Ser Thr Ala Asn Ser Ile
1285 1290 1295

Met Ala Ser Tyr Gln Gln Gln Lys Thr Ser Val Pro Val Leu Asp Ala
1300 1305 1310

Glu Leu Phe Ile Pro Pro Lys Ile Asn Arg Arg Thr Gln Trp Lys Leu
1315 1320 1325

Ser Leu Leu Asp
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<212> PRT

<213> Drosophila melanogaster

<400> 6
Met Arg Asn Leu Lys Leu Arg Tyr Cys Lys Glu Leu Asn Ala Val Ala
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His Pro Gln His Leu Leu Leu Gln Pro Glu Leu Asn Gly Gly Ala Ser
20 25 30

Asp Ile Tyr Phe Val Val Ala Asp Asn Lys Thr Tyr Ala Val Gln Glu
35 40 45

Ser Gly Asp Val Arg Leu Lys Val Ile Ala Asp Leu Pro Asp Ile Val
50 55 60

Gly Val Glu Phe Leu Gln Leu Asp Asn Ala Ile Cys Val Ala Ser Gly
65 70 75 80

Ala Gly Glu Val Ile Leu Val Asp Pro Gln Thr Gly Ala Thr Ser Glu
85 90 95

Gly Thr Phe Cys Asp Val Gly Ile Glu Ser Met Ala Trp Ser Pro Asn
100 105 110

Gln Glu Val Val Ala Phe Val Thr Arg Thr His Asn Val Val Leu Met
115 120 125

Thr Ser Thr Phe Asp Val Ile Ala Glu Gln Pro Leu Asp Ala Glu Leu
130 135 140

Asp Pro Asp Gln Gln Phe Val Asn Val Gly Trp Gly Lys Lys Glu Thr
145 150 155 160

Gln Phe His Gly Ser Glu Gly Lys Gln Ala Ala Lys Gln Lys Glu Ser
165 170 175

Asp Ser Thr Phe Thr Arg Asp Glu Gln Glu Leu Asn Gln Asp Val Ser
180 185 190

Ile Ser Trp Arg Gly Asp Gly Glu Phe Phe Val Val Ser Tyr Val Ala
195 200 205

Ala Gln Leu Gly Arg Thr Phe Lys Val Tyr Asp Ser Glu Gly Lys Leu
210 215 220

Asn His Thr Ala Glu Lys Ser Ala Asn Leu Lys Asp Ser Val Val Trp

225 230 235 240
Arg Pro Thr Gly Asn Trp Ile Ala Val Pro Gln Gln Phe Pro Asn Lys
245 250 255
Ser Thr Ile Ala Leu Phe Glu Lys Asn Gly Leu Arg His Arg Glu Leu
260 265 270

Val Leu Pro Phe Asp Leu Gln Glu Pro Val Val Gln Leu Arg Trp
275 280 285
Ser Glu Asp Ser Asp Ile Leu Ala Ile Arg Thr Cys Ala Lys Glu Glu
290 295 300
Gln Arg Val Tyr Leu Tyr Thr Ile Gly Asn Tyr His Trp Tyr Leu Lys
305 310 315 320
Gln Val Leu Ile Phe Glu Gln Ala Asp Pro Leu Ala Leu Leu His Trp
325 330 335
Asp Thr Arg Cys Gly Ala Glu His Thr Leu His Val Leu Lys Glu Ser
340 345 350
Gly Lys His Leu Val Tyr Arg Trp Ala Phe Ala Val Asp Arg Asn Asn
355 360 365
Ser Ile Val Gly Val Ile Asp Gly Lys Arg Leu Leu Leu Thr Asp Phe
370 375 380
Asp Glu Ala Ile Val Pro Pro Pro Met Ser Lys Glu Leu Gln Lys Pro
385 390 395 400
Ile Met Leu Met Pro Asp Ala Glu Leu Ser Gly Leu His Leu Ala Asn
405 410 415
Leu Thr His Phe Ser Pro His Tyr Leu Leu Ala Thr His Ser Ser Ala
420 425 430
Gly Ser Thr Arg Leu Leu Leu Ser Tyr Lys Asp Asn Asp Asn Lys
435 440 445
Pro Gly Glu Trp Phe Tyr Arg Val His Ser Ser Val Arg Ile Asn Gly
450 455 460
Leu Val Asn Ala Val Ala Val Ala Pro Tyr Ala Met Asn Glu Phe Tyr
465 470 475 480
Val Gln Thr Val Asn Asn Gly His Thr Tyr Glu Val Ser Leu Lys Ala
485 490 495
Asp Lys Thr Leu Lys Val Glu Arg Ser Tyr Val Gln Leu His Glu Pro
500 505 510
Ala Asp Gln Ile Asp Trp Val Ile Val Lys Gly Cys Ile Trp Asp Gly
515 520 525
Tyr Thr Gly Ala Leu Val Thr Leu Arg Asn Gln His Leu Leu His Ile
530 535 540
Asp Gly Tyr Arg Ile Gly Glu Asp Val Thr Ser Phe Cys Val Val Thr
545 550 555 560
Asn Tyr Leu Val Tyr Thr Gln Leu Asn Ala Met His Phe Val Gln Leu
565 570 575

Asp Asp Arg Arg Gln Val Ala Ser Arg Asn Ile Glu Arg Gly Ala Lys
580 585 590

Ile Val Thr Ala Val Ala Arg Lys Ala Arg Val Val Leu Gln Leu Pro
595 600 605

Arg Gly Asn Leu Glu Ala Ile Cys Pro Arg Val Leu Val Leu Glu Leu
610 615 620

Val Gly Asp Leu Leu Glu Arg Gly Lys Tyr Gln Lys Ala Ile Glu Met
625 630 635 640

Ser Arg Lys Gln Arg Ile Asn Leu Asn Ile Ile Phe Asp His Asp Val
645 650 655

Lys Arg Phe Val Ser Ser Val Gly Ala Phe Leu Asn Asp Ile Asn Glu
660 665 670

Pro Gln Trp Leu Cys Leu Phe Leu Ser Glu Leu Gln Asn Glu Asp Phe
675 680 685

Thr Lys Gly Met Tyr Ser Ser Asn Tyr Asp Ala Ser Lys Gln Thr Tyr
690 695 700

Pro Ser Asp Tyr Arg Val Asp Gln Lys Val Phe Tyr Val Cys Arg Leu
705 710 715 720

Leu Glu Gln Gln Met Asn Arg Phe Val Ser Arg Phe Arg Leu Pro Leu
725 730 735

Ile Thr Ala Tyr Val Lys Leu Gly Cys Leu Glu Met Ala Leu Gln Val
740 745 750

Ile Trp Lys Glu Gln Gln Glu Asp Ala Ser Leu Ala Asp Gln Leu Leu
755 760 765

Gln His Leu Leu Tyr Leu Val Asp Val Asn Asp Leu Tyr Asn Val Ala
770 775 780

Leu Gly Thr Tyr Asp Phe Gly Leu Val Leu Phe Val Ala Gln Lys Ser
785 790 795 800

Gln Lys Asp Pro Lys Glu Phe Leu Pro Tyr Leu Asn Asp Leu Lys Ala
805 810 815

Leu Pro Ile Asp Tyr Arg Lys Phe Arg Ile Asp Asp His Leu Lys Arg
820 825 830

Tyr Thr Ser Ala Leu Ser His Leu Ala Ala Cys Gly Glu Gln His Tyr
835 840 845

Glu Glu Ala Leu Glu Tyr Ile Arg Lys His Gly Leu Tyr Thr Asp Gly
850 855 860

Leu Ala Phe Tyr Arg Glu His Ile Glu Phe Gln Lys Asn Ile Tyr Val
865 870 875 880

Ala Tyr Ala Asp His Leu Arg Ala Ile Ala Lys Leu Asp Asn Ala Ser
885 890 895

Leu Met Tyr Glu Arg Gly Gly Gln Leu Gln Gln Ala Leu Leu Ser Ala
900 905 910

Lys His Thr Leu Asp Trp Gln Arg Val Leu Val Leu Ala Lys Lys Leu
915 920 925

Ser Glu Pro Leu Asp Gln Val Ala Gln Ser Leu Val Gly Pro Leu Gln
930 935 940

Gln Gln Gly Arg His Met Glu Ala Tyr Glu Leu Val Lys Glu His Cys
945 950 955 960

Gln Asp Arg Lys Arg Gln Phe Asp Val Leu Leu Glu Gly His Leu Tyr
965 970 975

Ser Arg Ala Ile Tyr Glu Ala Gly Leu Glu Asp Asp Asp Val Ser Glu
980 985 990

Lys Ile Ala Pro Ala Leu Leu Ala Tyr Gly Val Gln Leu Glu Ser Ser
995 1000 1005

Leu Gln Ala Asp Leu Gln Leu Phe Leu Asp Tyr Lys Gln Arg Leu Leu
1010 1015 1020

Asp Ile Arg Arg Asn Gln Ala Lys Ser Gly Glu Gly Tyr Ile Asp Thr
1025 1030 1035 1040

Asp Val Asn Leu Lys Glu Val Asp Leu Leu Ser Asp Thr Thr Ser Leu
1045 1050 1055

His Ser Ser Gln Tyr Ser Gly Thr Ser Arg Arg Thr Gly Lys Thr Phe
1060 1065 1070

Arg Ser Ser Lys Asn Arg Arg Lys His Glu Arg Lys Leu Phe Ser Leu
1075 1080 1085

Lys Pro Gly Asn Pro Phe Glu Asp Ile Ala Leu Ile Asp Ala Leu His
1090 1095 1100

Asn His Val Thr Lys Ile Ala Gln Gln Gln Pro Val Arg Asp Thr
1105 1110 1115 1120

Cys Lys Ala Leu Leu Gln Leu Ala Asn Ala Ala Asp Ala Asp Pro Leu
1125 1130 1135

Ala Ala Ala Leu Gln Arg Glu Phe Lys Thr Leu Leu Gln Ala Val Asp
1140 1145 1150

Ala Ala Leu Asp Glu Ile Trp Thr Pro Glu Leu Arg Gly Asn Gly Leu
1155 1160 1165

Met Ala Asp His Leu Thr Gly Pro Asn Val Asp Tyr Leu Ala Leu Gln
1170 1175 1180

Lys Glu Gln Arg Tyr Ala Leu Leu Ser Pro Leu Lys Arg Phe Lys Pro
1185 1190 1195 1200

Gln Leu Ile Met Met Asp Trp Gln His Glu Ile Leu Gln
1205 1210

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<211> 1349
<212> PRT
<213> *Saccharomyces cerevisiae*

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Asn Met Arg Asn Leu Ile Thr Leu Asn Lys Gly Lys Phe Lys Pro Thr
20 25 30
Ala Ser Thr Ala Glu Gly Asp Glu Asp Asp Leu Ser Phe Thr Leu Leu
35 40 45
Asp Ser Val Phe Asp Thr Leu Ser Asp Ser Ile Thr Cys Val Leu Gly
50 55 60
Ser Thr Asp Ile Gly Ala Ile Glu Val Gln Gln Phe Met Lys Asp Gly
65 70 75 80
Ser Arg Asn Val Leu Ala Ser Phe Asn Ile Gln Thr Phe Asp Asp Lys
85 90 95
Leu Leu Ser Phe Val His Phe Ala Asp Ile Asn Gln Leu Val Phe Val
100 105 110
Phe Glu Gln Gly Asp Ile Ile Thr Ala Thr Tyr Asp Pro Val Ser Leu
115 120 125
Asp Pro Ala Glu Thr Leu Ile Glu Ile Met Gly Thr Ile Asp Asn Gly
130 135 140
Ile Ala Ala Ala Gln Trp Ser Tyr Asp Glu Glu Thr Leu Ala Met Val
145 150 155 160
Thr Lys Asp Arg Asn Val Val Leu Ser Lys Leu Phe Glu Pro Ile
165 170 175
Ser Glu Tyr His Leu Glu Val Asp Asp Leu Lys Ile Ser Lys His Val
180 185 190
Thr Val Gly Trp Gly Lys Lys Glu Thr Gln Phe Arg Gly Lys Gly Ala
195 200 205
Arg Ala Met Glu Arg Glu Ala Leu Ala Ser Leu Lys Ala Ser Gly Leu
210 215 220
Val Gly Asn Gln Leu Arg Asp Pro Thr Met Pro Tyr Met Val Asp Thr
225 230 235 240
Gly Asp Val Thr Ala Leu Asp Ser His Glu Ile Thr Ile Ser Trp Arg
245 250 255
Gly Asp Cys Asp Tyr Phe Ala Val Ser Ser Val Glu Glu Val Pro Asp
260 265 270
Glu Asp Asp Glu Thr Lys Ser Ile Lys Arg Arg Ala Phe Arg Val Phe
275 280 285
Ser Arg Glu Gly Gln Leu Asp Ser Ala Ser Glu Pro Val Thr Gly Met
290 295 300
Glu His Gln Leu Ser Trp Lys Pro Gln Gly Ser Leu Ile Ala Ser Ile
305 310 315 320
Gln Arg Lys Thr Asp Leu Gly Glu Glu Asp Ser Val Asp Val Ile Phe
325 330 335
Phe Glu Arg Asn Gly Leu Arg His Gly Glu Phe Asp Thr Arg Leu Pro

340 345 350
Leu Asp Glu Lys Val Glu Ser Val Cys Trp Asn Ser Asn Ser Glu Ala
355 360 365
Leu Ala Val Val Leu Ala Asn Arg Ile Gln Leu Trp Thr Ser Lys Asn
370 375 380
Tyr His Trp Tyr Leu Lys Gln Glu Leu Tyr Ala Ser Asp Ile Ser Tyr
385 390 395 400
Val Lys Trp His Pro Glu Lys Asp Phe Thr Leu Met Phe Ser Asp Ala
405 410 415
Gly Phe Ile Asn Ile Val Asp Phe Ala Tyr Lys Met Ala Gln Gly Pro
420 425 430
Thr Leu Glu Pro Phe Asp Asn Gly Thr Ser Leu Val Val Asp Gly Arg
435 440 445
Thr Val Asn Ile Thr Pro Leu Ala Leu Ala Asn Val Pro Pro Pro Met
450 455 460
Tyr Tyr Arg Asp Phe Glu Thr Pro Gly Asn Val Leu Asp Val Ala Cys
465 470 475 480
Ser Phe Ser Asn Glu Ile Tyr Ala Ala Ile Asn Lys Asp Val Leu Ile
485 490 495
Phe Ala Ala Val Pro Ser Ile Glu Glu Met Lys Lys Gly Lys His Pro
500 505 510
Ser Ile Val Cys Glu Phe Pro Lys Ser Glu Phe Thr Ser Glu Val Asp
515 520 525
Ser Leu Arg Gln Val Ala Phe Ile Asn Asp Ser Ile Val Gly Val Leu
530 535 540

Leu Asp Thr Asp Asn Leu Ser Arg Ile Ala Leu Leu Asp Ile Gln Asp
545 550 555 560
Ile Thr Gln Pro Thr Leu Ile Thr Ile Val Glu Val Tyr Asp Lys Ile
565 570 575
Val Leu Leu Ser Ser Asp Phe Asp Tyr Asn His Leu Val Tyr Glu Thr
580 585 590
Arg Asp Gly Thr Val Cys Gln Leu Asp Ala Glu Gly Gln Leu Met Glu
595 600 605
Ile Thr Lys Phe Pro Gln Leu Val Arg Asp Phe Arg Val Lys Arg Val
610 615 620
His Asn Thr Ser Ala Glu Asp Asp Asp Asn Trp Ser Ala Glu Ser Ser
625 630 635 640
Glu Leu Val Ala Phe Gly Ile Thr Asn Asn Gly Lys Leu Phe Ala Asn
645 650 655
Gln Val Leu Leu Ala Ser Ala Val Thr Ser Leu Glu Ile Thr Asp Ser
660 665 670
Phe Leu Leu Phe Thr Thr Ala Gln His Asn Leu Gln Phe Val His Leu
675 680 685

Asn Ser Thr Asp Phe Lys Pro Leu Pro Leu Val Glu Glu Gly Val Glu
690 695 700

Asp Glu Arg Val Arg Ala Ile Glu Arg Gly Ser Ile Leu Val Ser Val
705 710 715 720

Ile Pro Ser Lys Arg Ser Val Val Leu Gln Ala Thr Arg Gly Asn Leu
725 730 735

Glu Thr Ile Tyr Pro Arg Ile Met Val Leu Ala Glu Val Arg Lys Asn
740 745 750

Ile Met Ala Lys Arg Tyr Lys Glu Ala Phe Ile Val Cys Arg Thr His
755 760 765

Arg Ile Asn Leu Asp Ile Leu His Asp Tyr Ala Pro Glu Leu Phe Ile
770 775 780

Glu Asn Leu Glu Val Phe Ile Asn Gln Ile Gly Arg Val Asp Tyr Leu
785 790 795 800

Asn Leu Phe Ile Ser Cys Leu Ser Glu Asp Asp Val Thr Lys Thr Lys
805 810 815

Tyr Lys Glu Thr Leu Tyr Ser Gly Ile Ser Lys Ser Phe Gly Met Glu
820 825 830

Pro Ala Pro Leu Thr Glu Met Gln Ile Tyr Met Lys Lys Lys Met Phe
835 840 845

Asp Pro Lys Thr Ser Lys Val Asn Lys Ile Cys Asp Ala Val Leu Asn
850 855 860

Val Leu Leu Ser Asn Pro Glu Tyr Lys Lys Tyr Leu Gln Thr Ile
865 870 875 880

Ile Thr Ala Tyr Ala Ser Gln Asn Pro Gln Asn Leu Ser Ala Ala Leu
885 890 895

Lys Leu Ile Ser Glu Leu Glu Asn Ser Glu Glu Lys Asp Ser Cys Val
900 905 910

Thr Tyr Leu Cys Phe Leu Gln Asp Val Asn Val Val Tyr Lys Ser Ala
915 920 925

Leu Ser Leu Tyr Asp Val Ser Leu Ala Leu Leu Val Ala Gln Lys Ser
930 935 940

Gln Met Asp Pro Arg Glu Tyr Leu Pro Phe Leu Gln Glu Leu Gln Asp
945 950 955 960

Asn Glu Pro Leu Arg Arg Lys Phe Leu Ile Asp Asp Tyr Leu Gly Asn
965 970 975

Tyr Glu Lys Ala Leu Glu His Leu Ser Glu Ile Asp Lys Asp Gly Asn
980 985 990

Val Ser Glu Glu Val Ile Asp Tyr Val Glu Ser His Asp Leu Tyr Lys
995 1000 1005

His Gly Leu Ala Leu Tyr Arg Tyr Asp Ser Glu Lys Gln Asn Val Ile
1010 1015 1020

Tyr Asn Ile Tyr Ala Lys His Leu Ser Ser Asn Gln Met Tyr Thr Asp
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Ala Ala Val Ala Tyr Glu Met Leu Gly Lys Leu Lys Glu Ala Met Gly
1045 1050 1055

Ala Tyr Gln Ser Ala Lys Arg Trp Arg Glu Ala Met Ser Ile Ala Val
1060 1065 1070

Gln Lys Phe Pro Glu Glu Val Glu Ser Val Ala Glu Glu Leu Ile Ser
1075 1080 1085

Ser Leu Thr Phe Glu His Arg Tyr Val Asp Ala Ala Asp Ile Gln Leu
1090 1095 1100

Glu Tyr Leu Asp Asn Val Lys Glu Ala Val Ala Leu Tyr Cys Lys Ala
1105 1110 1115 1120

Tyr Arg Tyr Asp Ile Ala Ser Leu Val Ala Ile Lys Ala Lys Lys Asp
1125 1130 1135

Glu Leu Leu Glu Glu Val Val Asp Pro Gly Leu Gly Glu Gly Phe Gly
1140 1145 1150

Ile Ile Ala Glu Leu Leu Ala Asp Cys Lys Gly Gln Ile Asn Ser Gln
1155 1160 1165

Leu Arg Arg Leu Arg Glu Leu Arg Ala Lys Lys Glu Glu Asn Pro Tyr
1170 1175 1180

Ala Phe Tyr Gly Gln Glu Thr Glu Gln Ala Asp Asp Val Ser Val Ala
1185 1190 1195 1200

Pro Ser Glu Thr Ser Thr Gln Glu Ser Phe Phe Thr Arg Tyr Thr Gly
1205 1210 1215

Lys Thr Gly Gly Thr Ala Lys Thr Gly Ala Ser Arg Arg Thr Ala Lys
1220 1225 1230

Asn Lys Arg Arg Glu Glu Arg Lys Arg Ala Arg Gly Lys Lys Gly Thr
1235 1240 1245

Ile Tyr Glu Glu Glu Tyr Leu Val Gln Ser Val Gly Arg Leu Ile Glu
1250 1255 1260

Arg Leu Asn Gln Thr Lys Pro Asp Ala Val Arg Val Val Glu Gly Leu
1265 1270 1275 1280

Cys Arg Arg Asn Met Arg Glu Gln Ala His Gln Ile Gln Lys Asn Phe
1285 1290 1295

Val Glu Val Leu Asp Leu Leu Lys Ala Asn Val Lys Glu Ile Tyr Ser
1300 1305 1310

Ile Ser Glu Lys Asp Arg Glu Arg Val Asn Glu Asn Gly Glu Val Tyr
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Ser Arg Leu Phe Phe Ala Ser Ser Ala Asn Phe Val Tyr Ala Leu Gln
35 40 45
Leu Ser Ser Phe Gln Asn Glu Ser Ala Gly Ala Lys Ser Ala Met Pro
50 55 60
Val Glu Val Cys Ser Ile Asp Ile Glu Pro Gly Asp Phe Ile Thr Ala
65 70 75 80
Phe Asp Tyr Leu Ala Glu Lys Glu Ser Leu Leu Ile Gly Thr Ser His
85 90 95
Gly Leu Leu Leu Val His Asn Val Glu Ser Asp Val Thr Glu Leu Val
100 105 110
Gly Asn Ile Glu Gly Gly Val Lys Cys Ile Ser Pro Asn Pro Thr Gly
115 120 125
Asp Leu Leu Gly Leu Ile Thr Gly Leu Gly Gln Leu Ile Val Met Thr
130 135 140
Tyr Asp Trp Ala Leu Met Tyr Glu Lys Ala Leu Gly Glu Val Pro Glu
145 150 155 160
Gly Gly Tyr Val Arg Glu Thr Asn Asp Leu Ser Val Asn Cys Gly Gly
165 170 175
Ile Ser Ile Ser Trp Arg Gly Asp Gly Lys Tyr Phe Ala Thr Met Gly
180 185 190
Glu Val Tyr Glu Ser Gly Cys Met Ser Lys Lys Ile Lys Ile Trp Glu
195 200 205
Ser Asp Ser Gly Ala Leu Gln Ser Ser Ser Glu Thr Lys Glu Phe Thr
210 215 220
Gln Gly Ile Leu Glu Trp Met Pro Ser Gly Ala Lys Ile Ala Ala Val
225 230 235 240
Tyr Lys Arg Lys Ser Asp Asp Ser Ser Pro Ser Ile Ala Phe Phe Glu
245 250 255
Arg Asn Gly Leu Glu Arg Ser Ser Phe Arg Ile Gly Glu Pro Glu Asp
260 265 270
Ala Thr Glu Ser Cys Glu Asn Leu Lys Trp Asn Ser Ala Ser Asp Leu
275 280 285
Leu Ala Gly Val Val Ser Cys Lys Thr Tyr Asp Ala Ile Arg Val Trp
290 295 300
Phe Phe Ser Asn Asn His Trp Tyr Leu Lys Gln Glu Ile Arg Tyr Pro
305 310 315 320

Arg Glu Ala Gly Val Thr Val Met Trp Asp Pro Thr Lys Pro Leu Gln
325 330 335

Leu Ile Cys Trp Thr Leu Ser Gly Gln Val Ser Val Arg His Phe Met
340 345 350

Trp Val Thr Ala Val Met Glu Asp Ser Thr Ala Phe Val Ile Asp Asn
355 360 365

Ser Lys Ile Leu Val Thr Pro Leu Ser Leu Ser Leu Met Pro Pro Pro
370 375 380

Met Tyr Leu Phe Ser Leu Ser Phe Ser Ser Ala Val Arg Asp Ile Ala
385 390 395 400

Tyr Tyr Ser Arg Asn Ser Lys Asn Cys Leu Ala Val Phe Leu Ser Asp
405 410 415

Gly Asn Leu Ser Phe Val Glu Phe Pro Ala Pro Asn Thr Trp Glu Asp
420 425 430

Leu Glu Gly Lys Asp Phe Ser Val Glu Ile Ser Asp Cys Lys Thr Ala
435 440 445

Leu Gly Ser Phe Val His Leu Leu Trp Leu Asp Val His Ser Leu Leu
450 455 460

Cys Val Ser Ala Tyr Gly Ser Ser His Asn Lys Cys Leu Ser Ser Gly
465 470 475 480

Gly Tyr Asp Thr Glu Leu His Gly Ser Tyr Leu Gln Glu Val Glu Val
485 490 495

Val Cys His Glu Asp His Val Pro Asp Gln Val Thr Cys Ser Gly Phe
500 505 510

Lys Ala Ser Ile Thr Phe Gln Thr Leu Leu Glu Ser Pro Val Leu Ala
515 520 525

Leu Ala Trp Asn Pro Ser Lys Arg Asp Ser Ala Phe Val Glu Phe Glu
530 535 540

Gly Gly Lys Val Leu Gly Tyr Ala Ser Arg Ser Glu Ile Met Glu Thr
545 550 555 560

Arg Ser Ser Asp Asp Ser Val Cys Phe Pro Ser Thr Cys Pro Trp Val
565 570 575

Arg Val Ala Gln Val Asp Ala Ser Gly Val His Lys Pro Leu Ile Cys
580 585 590

Gly Leu Asp Asp Met Gly Arg Leu Ser Ile Asn Gly Lys Asn Leu Cys
595 600 605

Asn Asn Cys Ser Ser Phe Ser Phe Tyr Ser Glu Leu Ala Asn Glu Val
610 615 620

Val Thr His Leu Ile Ile Leu Thr Lys Gln Asp Phe Leu Phe Ile Val
625 630 635 640

Asp Thr Lys Asp Val Leu Asn Gly Asp Val Ala Leu Gly Asn Val Phe
645 650 655

Phe Val Ile Asp Gly Arg Arg Arg Asp Glu Glu Asn Met Ser Tyr Val
660 665 670

Asn Ile Trp Glu Arg Gly Ala Lys Val Ile Gly Val Leu Asn Gly Asp
675 680 685

Glu Ala Ala Val Ile Leu Gln Thr Met Arg Gly Asn Leu Glu Cys Ile
690 695 700

Tyr Pro Arg Lys Leu Val Leu Ser Ser Ile Thr Asn Ala Leu Ala Gln
705 710 715 720

Gln Arg Phe Lys Asp Ala Phe Asn Leu Val Arg Arg His Arg Ile Asp
725 730 735

Phe Asn Val Ile Val Asp Leu Tyr Gly Trp Gln Ala Phe Leu Gln Ser
740 745 750

Ala Val Ala Phe Val Glu Gln Val Asn Asn Leu Asn His Val Thr Glu
755 760 765

Phe Val Cys Ala Met Lys Asn Glu Asp Val Thr Glu Thr Leu Tyr Lys
770 775 780

Lys Phe Ser Phe Ser Lys Lys Gly Asp Glu Val Phe Arg Val Lys Asp
785 790 795 800

Ser Cys Ser Asn Lys Val Ser Ser Val Leu Gln Ala Ile Arg Lys Ala
805 810 815

Leu Glu Glu His Ile Pro Glu Ser Pro Ser Arg Glu Leu Cys Ile Leu
820 825 830

Thr Thr Leu Ala Arg Ser Asp Pro Pro Ala Ile Glu Glu Ser Leu Leu
835 840 845

Arg Ile Lys Ser Val Arg Glu Met Glu Leu Leu Asn Ser Ser Asp Asp
850 855 860

Ile Arg Lys Lys Ser Cys Pro Ser Ala Glu Glu Ala Leu Lys His Leu
865 870 875 880

Leu Trp Leu Leu Asp Ser Glu Ala Val Phe Glu Ala Ala Leu Gly Leu
885 890 895

Tyr Asp Leu Asn Leu Ala Ala Ile Val Ala Leu Asn Ser Gln Arg Asp
900 905 910

Pro Lys Glu Phe Leu Pro Tyr Leu Gln Glu Leu Glu Lys Met Pro Glu
915 920 925

Ser Leu Met His Phe Lys Ile Asp Ile Lys Leu Gln Arg Phe Asp Ser
930 935 940

Ala Leu Arg Asn Ile Val Ser Ala Gly Val Gly Tyr Phe Pro Asp Cys
945 950 955 960

Met Asn Leu Ile Lys Lys Asn Pro Gln Leu Phe Pro Leu Gly Leu Leu
965 970 975

Leu Ile Thr Asp Pro Glu Lys Lys Leu Val Val Leu Glu Ala Trp Ala
980 985 990

Asp His Leu Ile Asp Glu Lys Arg Phe Glu Asp Ala Ala Thr Thr Tyr
995 1000 1005

Leu Cys Cys Cys Lys Leu Glu Lys Ala Ser Lys Ala Tyr Arg Glu Cys
1010 1015 1020

Gly Asp Trp Ser Gly Val Leu Arg Val Gly Ala Leu Met Lys Leu Gly
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Lys Asp Glu Ile Leu Lys Leu Ala Tyr Glu Leu Cys Glu Glu Val Asn
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Ala Leu Gly Lys Pro Ala Glu Ala Ala Lys Ile Ala Leu Glu Tyr Cys
1060 1065 1070

Ser Asp Ile Ser Gly Gly Ile Ser Leu Leu Ile Asn Ala Arg Glu Trp
1075 1080 1085

Glu Glu Ala Leu Arg Val Ala Phe Leu His Thr Ala Asp Asp Arg Ile
1090 1095 1100

Ser Val Val Lys Ser Ser Ala Leu Glu Cys Ala Ser Gly Leu Val Ser
1105 1110 1115 1120

Glu Phe Lys Glu Ser Ile Glu Lys Val Gly Lys Tyr Leu Thr Arg Tyr
1125 1130 1135

Leu Ala Val Arg Gln Arg Arg Leu Leu Leu Ala Ala Lys Leu Lys Ser
1140 1145 1150

Glu Glu Arg Ser Val Val Asp Leu Asp Asp Asp Thr Ala Ser Glu Ala
1155 1160 1165

Ser Ser Asn Leu Ser Gly Met Ser Ala Tyr Thr Leu Gly Thr Arg Arg
1170 1175 1180

Gly Ser Ala Ala Ser Val Ser Ser Ser Asn Ala Thr Ser Arg Ala Arg
1185 1190 1195 1200

Asp Leu Arg Arg Gln Arg Lys Ser Gly Lys Ile Arg Ala Gly Ser Ala
1205 1210 1215

Gly Glu Glu Met Ala Leu Val Asp His Leu Lys Gly Met Arg Met Thr
1220 1225 1230

Asp Gly Gly Lys Arg Glu Leu Lys Ser Leu Leu Ile Cys Leu Val Thr
1235 1240 1245

Leu Gly Glu Met Glu Ser Ala Gln Lys Leu Gln Gln Thr Ala Glu Asn
1250 1255 1260

Phe Gln Val Ser Gln Val Ala Ala Val Glu Leu Ala His Asp Thr Val
1265 1270 1275 1280

Ser Ser Glu Ser Val Asp Glu Glu Val Tyr Cys Phe Glu Arg Tyr Ala
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Leu Lys Val Phe Ile Ser Pro
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35 40 45
Ser Ser Thr Ile Lys Trp Ala Glu Gln Arg Arg Glu Leu Glu Val Ile
50 55 60
Ser Leu Ser Phe Arg Thr Asp Gly Asn Gln Ile Val Val Ile Leu Ala
65 70 75 80
Asp Gly Arg Ala Leu Ile Val Glu Asp Gly Glu Val Met Asp Leu Glu
85 90 95
Ile Ala Glu Leu Thr Asp Thr Thr Val Ser Ala Ala Glu Trp Thr Ala
100 105 110
Asp Glu Gln Thr Leu Ala Leu Ala Asp Asn Gln Thr Leu Tyr Leu Ala
115 120 125
Asp Ser Ser Leu Val Pro Phe Ala Glu Arg Pro Leu Ile Phe Ser Glu
130 135 140
Asn Glu Arg Lys Ser Ala Pro Val Asn Val Gly Trp Gly Ser Glu Ser
145 150 155 160
Thr Gln Phe Arg Gly Ser Ala Gly Lys Leu Lys Pro Gly Glu Lys Ile
165 170 175
Glu Lys Glu Lys Glu Gln Ile Glu Gln His Ser Arg Lys Thr Ser Val
180 185 190
His Trp Arg Trp Asp Gly Glu Ile Val Ala Val Ser Phe Tyr Ser Ser
195 200 205
Gln Asn Asp Thr Arg Asn Leu Thr Val Phe Asp Arg Asn Gly Glu Ile
210 215 220
Leu Asn Asn Met Asn Ile Arg Asn Ile Tyr Leu Ser His Cys Phe Ala
225 230 235 240
His Lys Pro Asn Ala Asn Leu Leu Cys Ser Ala Ile Gln Glu Asn Gly
245 250 255
Ser Asp Asp Arg Ile Val Ile Tyr Glu Arg Asn Gly Glu Thr Arg Asn
260 265 270
Ser Tyr Val Val Lys Trp Pro Ala Asn Gln Ile Glu Asp Arg Arg Ile
275 280 285
Ile Glu Lys Ile Glu Trp Asn Ser Thr Gly Thr Ile Leu Ser Met Gln
290 295 300
Thr Ser Leu Gly Lys Lys His Gln Leu Glu Phe Trp His Leu Ser Asn
305 310 315 320

Tyr Glu Phe Thr Arg Lys Cys Tyr Trp Lys Phe Ser Glu Ser Ile Ile
325 330 335

Trp Lys Trp Ser Thr Val Glu Cys Gln Asn Ile Glu Val Leu Leu Glu
340 345 350

Ser Gly Gln Phe Phe Ser Val His Ile Thr Pro Thr Ala Ser Phe Ser
355 360 365

Asp Val Ile Ser Gln Asn Val Val Val Ala Thr Asp Glu Leu Arg Met
370 375 380

Tyr Ser Leu Cys Arg Arg Val Val Pro Pro Pro Met Cys Asp Tyr Ser
385 390 395 400

Ile Gln Cys Leu Ser Asp Ile Val Ala Tyr Thr Thr Ser Thr His His
405 410 415

Val His Val Ile Thr Ser Asp Trp Lys Ile Ile Ser Cys Met Leu Phe
420 425 430

Phe Lys Lys Lys Arg Asn Tyr Ser Asn Pro Phe Phe Arg Lys Lys
435 440 445

Tyr Ile Leu Glu Ile Leu Lys Val Pro Ser His Lys Thr Tyr Phe Ala
450 455 460

Cys Phe Ala Val Ser Gln Asp Thr Asp Gly Tyr Lys Phe Asn Ser Asp
465 470 475 480

Arg Ala Ser Ile Asp Glu Val Leu His Thr Glu Val Thr Glu Gly Ile
485 490 495

Ile Cys Gly Phe Val Tyr Asp Glu Pro Ser Glu Ser Tyr Ile Ile Trp
500 505 510

Asn Val Ser His Gly Lys His Gln Ile Ser Arg Val Gly Ala Asn Pro
515 520 525

Glu Lys Ile Phe Glu Gly Glu Asn Ile Gly Trp Ile Gly Val Asn Pro
530 535 540

Ser Asn Lys His Val Glu Ile Ala Ser Asn Asp Gly Lys Phe Ile Asp
545 550 555 560

Leu Asn Thr Lys Glu Glu Leu Phe Lys Ile Asp Lys Phe Glu Ser Thr
565 570 575

Glu Val His Phe Ile Gln Val Cys His Gly Ile Leu Asn His His Val
580 585 590

Ile Gln Val Asp Asn Ser Met Leu Phe Leu Asp Ser Glu Arg Val Ser
595 600 605

Gln Asp Ala Ile Ser Ile Leu Thr Arg Gly Ser Asp Ile Leu Leu Ile
610 615 620

Asp Phe Asp Asn Lys Leu Arg Phe Ile Asp Ala Glu Ser Gly Lys Thr
625 630 635 640

Leu Glu Asp Val Arg Asn Val Glu Ala Gly Cys Glu Leu Val Ala Cys
645 650 655

Asp Ser Gln Ser Ala Asn Val Ile Leu Gln Ala Ala Arg Gly Asn Leu
660 665 670

Glu Thr Ile Gln Pro Arg Arg Tyr Val Met Ala His Thr Arg Asp Leu
675 680 685

Leu Asp Arg Lys Glu Tyr Ile Ala Ser Phe Lys Trp Met Lys Lys His
690 695 700

Arg Val Asp Met Ser Phe Ala Met Lys Tyr Lys Gly Asp Asp Leu Glu
705 710 715 720

Asp Asp Ile Pro Ile Trp Leu Lys Thr Ser Asn Asp Ser Gln Phe Leu
725 730 735

Glu Gln Leu Leu Ile Ser Cys Thr Glu Val Phe Glu Asp Ala Gly Ser
740 745 750

Ser Leu Cys Met Thr Val Ala Arg Tyr Val Arg Asp Leu Ser Asp Ala
755 760 765

Glu Lys Thr Lys Met Phe Pro Leu Leu Leu Thr Ala Leu Leu Ser Ala
770 775 780

Arg Ser Lys Pro Ser Lys Val Asn Asp Cys Leu Lys Glu Val Gln Glu
785 790 795 800

His Val Glu Lys Ile Ala Asp Arg Lys Asp Val Phe Thr Arg Asn Ser
805 810 815

Leu His His Ile Ser Phe Phe Val Pro Ala Lys Glu Leu Phe Asn Cys
820 825 830

Ala Leu Ser Thr Tyr Asp Leu Lys Leu Ala Gln Gln Val Ala Glu Ala
835 840 845

Ser Asn Tyr Asp Pro Lys Glu Tyr Leu Pro Val Leu Asn Lys Leu Asn
850 855 860

Arg Val Met Cys Thr Leu Glu Arg Gln Tyr Arg Ile Asn Val Val Arg
865 870 875 880

Glu Ala Trp Ile Asp Ala Val Ser Ser Leu Phe Leu Leu Asp Ser Ser
885 890 895

Lys Glu Arg Gly Ser Glu Glu Thr Trp Trp Asn Asp Ile Glu Asp Ile
900 905 910

Ile Ile Gln Arg Glu Lys Leu Tyr Gln Asp Ala Leu Thr Leu Val Lys
915 920 925

Pro Gly Asp Arg Arg Tyr Lys Gln Cys Cys Glu Leu Tyr Ala Glu Leu
930 935 940

Glu Arg Lys Val His Trp Arg Glu Ala Ala Leu Phe Tyr Glu Leu Ser
945 950 955 960

Gly Asn Ser Glu Lys Thr Leu Lys Cys Trp Glu Met Ser Arg Asp Val
965 970 975

Asp Gly Leu Ala Ala Ser Ala Arg Arg Leu Ala Val Asp Ala Gly Lys
980 985 990

Leu Lys Ile His Ala Ile Lys Met Ser Thr Thr Leu Arg Glu Ala Arg

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Gln Pro Lys Glu Leu Ala Lys Ala Leu Lys Leu Ala Gly Ser Ser Ser		
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Thr Gln Ile Val His Val Leu Cys Asp Ala Phe Glu Trp Leu Asp Ala		
1025	1030	1035
Ser Arg Glu Val Glu Val Gly Lys Glu Glu Ala Leu Lys Lys Ala Ala		
1045	1050	1055
Leu Ser Arg Asn Asp Gln Val Leu Met Asp Leu Glu Arg Arg Lys Thr		
1060	1065	1070
Glu Phe Glu Asn Tyr Lys Arg Leu Ala Val Val Arg Glu Asn Lys		
1075	1080	1085
Leu Lys Arg Val Glu Gln Phe Ala Ala Gly Glu Val Asp Asp Leu Arg		
1090	1095	1100
Asp Asp Ile Ser Val Ile Ser Ser Ile Ser Ser Arg Ser Gly Ser Ser		
1105	1110	1115
Lys Val Ser Met Ala Ser Thr Val Arg Arg Lys Gln Ile Glu Lys Lys		
1125	1130	1135
Lys Ser Ser Leu Lys Glu Gly Gly Glu Tyr Glu Asp Ser Ala Leu Leu		
1140	1145	1150
Asn Val Leu Ser Glu Asn Tyr Arg Trp Leu Glu Asn Ile Gly Ser Glu		
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